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Eduard Michel

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08/10/2004

CLARIANT CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
4000 MONROE ROAD
CHARLOTTE, NC 28205

EXAMINER

NOTE, JANIS L

ART UNIT

PAPER NUMBER

1756

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 09/722,760 | Applicant(s) MICHEL ET AL. | |
| | Examiner Janis L. Dote | Art Unit 1756 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-10,16,17,22 and 23 is/are pending in the application.
- 4a) Of the above claim(s) 4,9,10 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-8,16,22 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on Jul. 9, 2004, has been entered.

2. The examiner acknowledges the cancellation of claims 11-15 and 18-21, the amendments to claims 1, 4, 5, 7, and 22, and the addition of claim 23, filed on Jul. 9, 2004 (Amdt070904). Claims 1, 4-10, 16, 17, 22, and 23 are pending.

3. Applicants' election of species without traverse filed on Mar. 5, 2002, has been noted. The examiner has previously acknowledged the elected species, an electrophotographic toner or developer, and the elected ultimate species of invention, distearyldimethyl ammonium bentonite in preparation example 1 on pages 30-31 of the instant specification. See the office action mailed on May 1, 2002, paragraph 2.

Pursuant to the amendments to claims 1, 4, 5, 7, and 22, and the addition of new claim 23, filed in Amdt070904, instant

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claims 1, 5-8, 16, 22, and 23 read on the ultimate elected species.

Claims 4, 9, 10, and 17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made without traverse in the election filed on Mar. 5, 2002.

4. The rejection of claims 1, 4-10, 14-18, 20, and 21 under 35 U.S.C. 112, first paragraph, set forth in the office action mailed on Jan. 12, 2004 (CTFR011204), paragraph 6, has been withdrawn in response to the amendment to claim 1, and the cancellation of claims 14, 18, and 21.

The objection to claim 5, set forth in CTFR011204, paragraph 7, has been withdrawn in response to the submission of currently amended claim 5.

The rejection of claim 18 under 35 U.S.C. 102(b) over US 5,807,629 (Elspass), as evidenced by US 5,385,776 (Maxfield), set forth in CTFR011204, paragraph 9, has been mooted by the cancellation of claim 18.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 5 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 is indefinite in the Markush groups of R^1 to R^{18} , of R^{19} , of R^{61} and R^{64} , and of R^{69} and R^{70} for improper Markush language. The groups are missing the conjunction "or." Proper Markush language is "R is selected from the group consisting of . . . and . . ." or "R is . . . or . . ." MPEP 2173.05(h) (8th ed., Rev. 2, May 2004). It is not clear whether the groups are closed.

Claim 16 is indefinite in the phrase "wherein the ammonium ion is . . ." (emphasis added) for lack of unambiguous antecedent basis in claim 4, from which claim 16 depends. Claim 4 recites that the "low molecular weight organic cation is a substituted phosphonium, thionium or triphenylcarbonium ion or a cationic metal complex." Claim 4 does not recite that the low molecular weight organic cation is an ammonium ion.

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7. Claim 5 is objected to because of the following informalities:

Background lines run width-wise across the pages 3 and 4 of the amendments to the claims. The lines obscure part of the chemical formulas disclosed at pages 3 and 4.

The symbols representing the chemical bond that is supposed to link the SO_2^- group to the CH group and the chemical bond that is supposed to link the SO_3^- group to the CH group in the chemical moieties recited at page 6 are not located in the proper positions.

Appropriate correction is required.

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 1, 5-8, 16, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 8-6295 (JP'295) combined with US 3,925,278 (Murai), US 4,992,262 (Nakagaki), and US 5,385,776 (Maxfield). See the THOMAS-DERWENT machine-assisted translation of JP'295 for cites.

JP'295 discloses a charge controlling agent composition comprising a composition that comprises the charge controlling quaternary ammonium salt compound (1) of Table 1 of JP'295 and

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the extender organic bentonite in a weight ratio of 50:50. Translation, Table 1 at page 21, line 1; and paragraph 0052, charge controlling agent composition 4. JP'295 adds the charge controlling agent composition to a binder resin of a toner. See the translation, paragraph 0054. The resultant toner comprises a binder resin, a colorant, and the charge controlling agent composition comprising the organic bentonite. The resultant toner is a positively charged toner that shows stable electrostatic charge performances under conditions of high humidity and high temperature, as well as under low humidity and low temperature. See the translation, Table 2, paragraph 0060, lines 1-12, and paragraph 0061. JP'295 discloses that when the extender in the charge controlling agent composition is not the organic bentonite, but aluminum hydroxide, the electrostatic charge performance of the toner comprising said charge controlling agent composition was not stable under conditions of high humidity and high temperature and of low humidity and low temperature. Translation, paragraph 0053, charge controlling agent constituent 5; Table 2, example 5; and paragraph 0060, lines 1-12. Thus, the addition of organic bentonite in JP'295's charge controlling agent composition helps to control or improve the charge of an electrophotographic toner and developer.

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JP'295 does not identify the organic bentonite as distearyldimethyl ammonium bentonite as recited in instant claim 22. However, the term "organic bentonite" is usually defined as a bentonite impregnated with a cationic organic compound, such as a quaternary ammonium salt, e.g., dimethyloctadecylammonium bentonite. Murai, col. 1, lines 35-38. Nakagaki discloses that commercially available organic bentonites include BENTONE 27, BENTONE 34, and BENTONE 38. Nakagaki, col. 3, lines 27-29. Maxfield identifies BENTONE-34 as a montmorillonite whose native interlayer cations were ion-exchanged for dimethyldioctadecylammonium cation, which is another name for distearyldimethyl ammonium bentonite. Maxfield, col. 13, line 34, to col. 14, line 3. BENTONE-34 therefore meets the compositional limitation of "distearyldimethyl ammonium bentonite" as recited in instant claim 22. BENTONE 34 also meets the compositional limitation of the structured silicate salt comprising a low molecular weight organic cation as recited in instant claims 1, 5-8, 16, and 23.

Neither JP'295 nor the other cited references identify organic bentonite or BENTONE 34 as a charge control agent as recited in the instant claims. However, as discussed above, JP'295 shows that the addition of organic bentonite to its charge controlling agent improves or controls the charge of the

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toner. Furthermore, BENTONE 34 meets the compositional limitation of "distearyldimethyl ammonium bentonite" as recited in instant claim 22 and the compositional limitation of the structured silicate salt containing a low molecular weight organic cation as recited in instant claims 1, 5-8, 16, and 23. Thus, it is reasonable to presume that BENTONE 34 has the charge controlling properties recited in the instant claims. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Murai, Nakagaki, and Maxfield, to use the readily commercially available organic bentonite BENTONE 34 as the organic bentonite in the charge controlling agent composition disclosed by JP'295, and to add the resultant charge controlling agent composition to the toner binder resin to form a toner as disclosed by JP'295, because that person would have had a reasonable expectation of successfully obtaining an electrophotographic toner having stable electrostatic charge performances under conditions of high-humidity and high-temperature, as well as under low-humidity and low temperature, as taught by JP'295.

The recitations that the structured silicate salt is added as a charge control agent in claims 1, 5-8, 16, and 23, and that

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distearyldimethyl ammonium bentonite is added as a charge control agent in claim 22 do not result in a manipulative difference between the method recited in the instant claims and the method rendered obvious over the prior art. Thus, the recitations do not distinguish the method recited in the instant claims from the method rendered obvious over the combined teachings of the prior art.

10. Applicants' arguments filed in Amdt070904 with respect to the rejection set forth in paragraph 9 above have been fully considered but they are not persuasive.

Applicants state that because JP'295 discloses that bentonite is used as an "extender," JP'295 does not teach or suggest that a structured silicate salt can be used as a charge control agent. Applicants assert that there is no teaching, suggestion, or motivation in the prior art that would lead one of ordinary skill in the art to employ a structured silicate salt as a charge control agent in a method to improve charge characteristics of toners, developers, and electrets as recited in the instant claims. Applicants further assert that that person "could not enjoy a reasonable expectation of success that a structured silicate salt would act in a manner that improves,

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controls, or changes the charge characteristic of a particular material."

However, as discussed in paragraph 9 above, the combined teachings of JP'295 and the other cited references render obvious the step of adding to a toner binder resin a charge controlling agent composition comprising JP'295's quaternary ammonium salt compound (1) and BENTONE 34. BENTONE 34 meets the compositional limitation of "distearyldimethyl ammonium bentonite" recited in instant claim 22, and meets the compositional limitations of the "structured silicate salt" recited in instant claims 1, 5-8, 16, and 23. Thus, the step rendered obvious over the combined teachings of the prior art meets the step recited in those claims. As discussed in paragraph 9 above, the recitations that the structured silicate salt is added as a charge control agent in claims 1, 5-8, 16, and 23, and that distearyldimethyl ammonium bentonite is added as a charge control agent in claim 22 do not distinguish the method recited in the instant claims from the method rendered obvious over the prior art. The recitations do not result in a manipulative difference between the step recited in the instant claims and the step rendered obvious over the combined teachings of the prior art. Furthermore, as discussed in paragraph 9 above, JP'295 discloses that the addition of the extender

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organic bentonite in its charge controlling agent composition improves or controls the charge of the toner. Thus, a person having ordinary skill in the art would have a reasonable expectation of successfully controlling or improving the charge characteristics of a toner when using an organic bentonite as the extender in the charge controlling composition disclosed by JP' 254.

Accordingly, for the reasons discussed in the rejection, the rejection stands.

11. Claims 1, 7, 8, 16, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Canadian Patent 2,244,367 (CA' 367).

CA' 367 discloses a method of controlling or improving the charge of an electrophotographic toner or developer or an electret comprising the step of adding an "inter-polyelectrolyte complex" (IPEC) as a charge control agent to the binder resin of the toner or developer or the electret. Page 7, lines 4-22. The IPEC comprises a polyanion-forming compound and a polycation-forming compound. Page 8, lines 1-3. CA' 367 discloses that the polyanion-forming compound can be hectorite or bentonite from a list of about 61 examples of polyanion-forming compounds. Page 10, line 8. The polycation-forming

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compound can be a polymeric ammonium salt obtained by homopolymerizing the monomer of formula (1) disclosed at page 11, lines 10-21; a n,m-ionenes of the formula disclosed at page 12, line 15; or a poly(viologen) of the formula disclosed at page 12, line 20, from a list of about 37 examples of polycation-forming compounds. Hectorite and bentonite meet the limitation of the silicate anion recited in the instant claims. The polymeric ammonium salt, n,m-ionenes, and poly(viologen)s meet the limitation of the substituted ammonium cation recited in instant claims 7, 8, and 16. CA'367 exemplifies making a toner by adding an IPEC to the toner binder resin. The resultant toner is a negative chargeable toner. See Example 1 at page 21, lines 15-17, and Table 3 at page 22, example 1. Thus, the IPEC imparts a negative charge control. According to CA'367, its IPEC possesses good charge control properties and high thermal stability. The IPEC has good dispersibility in customary toner, powder coating, and electret binders. Page 7, lines 19-22.

CA'367 does not exemplify a method of controlling or improving the charge of an electrophotographic toner or developer or an electret comprising the step of adding the IPEC comprising hectorite or bentonite as the polyanion-forming compound and a polymeric ammonium salt, n,m-ionene, or

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poly(viologen) as the polycation-forming compound. However, as discussed above, CA'367 teaches that IPEC can comprise hectorite or bentonite as the polyanion-forming compound and the polymeric ammonium salt, n,m-ionene, or poly(viologen) as the polycation-forming compound.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of CA'367, to use an inter-polyelectrolyte complex (IPEC) comprising hectorite or bentonite as the polyanion-forming compound and the polymeric ammonium salt, n,m-ionene, or poly(viologen) as the polycation-forming compound, as the IPEC in the method of controlling or improving the charge of the toner disclosed in example 1 of CA'367, because that person would have had a reasonable expectation of successfully obtaining an electrophotographic toner or developer or an electret material having good charging properties as taught by CA'367.

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional

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rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claims 1, 7, 8, 16, and 23 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 6,030,738 (Michel'738).

Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter recited in the claims of Michel'738 renders obvious the subject matter recited in the instant claims.

Reference claim 5, which depends from reference claim 1, recites a method of controlling and improving the charge of an electrophotographic toner or developer, or an electret material comprising the step of adding an inter-polyelectrolyte complex in an amount of from 0.01 to 50% by weight to the binder of the toner or developer, the powder coating, or electret material. Reference claim 1 recites that the polyelectrolyte complex comprises a polyanion-forming compound and a polycation-forming compound, wherein the polyanion-forming compound can be hectorite or bentonite. Reference claim 3, which depends from reference claim 1, recites that the polycation-forming compound

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can be a polymeric ammonium salt obtained by homopolymerizing monomers of the formula (I), a n,m-ionene, and a poly(viologen). Hectorite and bentonite meet the limitation of the silicate anion recited in the instant claims. The polymeric ammonium salt, n,m-ionene, and poly(viologen) meet the limitation of the substituted ammonium cation recited in instant claims 7, 8, and 16. Reference claim 7 recite toners comprising a particular binder resin and from 0.01 to 50 % by weight, based on the total weight of the toner, an inter-polyelectrolyte complex comprising a polycation-forming compound and a polyanion-forming compound, wherein the polyanion-forming compound can be a hectorite or bentonite.

The reference claims do not recite that the inter-polyelectrolyte complex is a charge control agent as recited in the instant claims. Nor do the claims recite that the complex imparts either a positive or a negative charge as recited in instant claim 22. However, as discussed above, the polyelectrolyte complex recited in the reference claims meets the compositional limitations of the structured silicate salt recited in the instant claims. The reference claims recite a method of controlling and improving the charge of toners, developers, and electrets by adding the polyelectrolyte complex to the binder of toners, developers and electrets. Thus, it is

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reasonable to presume that the polyelectrolyte complex recited in the claims of Michel'738 has charge controlling properties as recited in the instant claims and imparts a either a negative or positive charge, as recited in instant claim 22. The burden is on applicants to prove otherwise. Fitzgerald, supra.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in the claims of Michel'738, to make and use an inter-polyelectrolyte complex (IPEC) comprising hectorite or bentonite as the polyanion-forming compound and a polymeric ammonium salt, n,m-ionene, or poly(viologen) as the polycation-forming compound, as the IPEC in the method of controlling or improving the charge recited in reference claim 5 of Michel'738, because that person would have had a reasonable expectation of successfully obtaining an electrophotographic toner or developer or an electret material that has improved charging.

14. Applicants' arguments filed in Amdt070904 with respect to the rejections set forth in paragraphs 11 and 13 above have been fully considered but they are not persuasive.

Applicants assert that the term "low molecular weight organic cation" recited in the instant claims excludes the polymeric ammonium salt, n,m-ionens, and polyviologens disclosed

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by CA'367 or recited in the claims of Michel'738. Applicants assert that the low molecular weight organic cation "is not polymerized."

However, the term "low molecular weight organic cation" does not exclude the polymeric ammonium salt, n,m-ionens, and polyviologens disclosed by the prior art. The instant claims do not recite that the low-molecular weight organic cation is not a polymerized product. Nor does the originally filed specification support applicants' allegation that the "low molecular weight organic cation . . . is not polymerized." The originally filed specification does not define the term "low molecular weight organic cation" as not being polymerized. Nor does the specification limit the term "low molecular weight organic cation" as not being polymerized. Rather, the originally filed specification at page 9, lines 18-21, states that "[t]he low molecular weight organic cations are preferably substituted ammonium, phosphonium, thionium or triphenylcarbonium ions or a cationic metal complex. Preferred ions are low molecular weight, that is to say nonpolymeric, ammonium ions of the formula (a)-(j)" (emphasis added). Accordingly, the rejections over CA'367 and Michel'738 stand.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L.

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Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (703) 872-9306.

Any inquiry of papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLD

Aug. 8, 2004

Janis L. Dote
JANIS L. DOTE
PRIMARY EXAMINER
GROUP 1500
1700